

JUN 17 1924

THE RHODE ISLAND MEDICAL JOURNAL



Owned and Published by the Rhode Island Medical Society. Issued Monthly

VOLUME VII }
No. 6 } Whole No. 177

PROVIDENCE, R. I., JUNE, 1924

PER YEAR \$2.00
SINGLE COPY 25 CENTS

CONTENTS

ORIGINAL ARTICLES

Diagnosis of Pulmonary Tuberculosis. Dr. Jay Perkins	81
The Routine Treatment of Diabetes Mellitus. Dr. A. A. Hornor	86
Discussion of Dr. Hornor's Paper	90

Contents continued on page IV advertising section

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT PROVIDENCE, R. I., UNDER ACT OF MARCH 3, 1879



In Surgical Sutures

SATISFACTION lies in strength, sterility and uniformity of absorption, features to be attained only when the smooth or detached side of selected sheep gut is employed. Right now the price of raw material is very high. Some manufacturers are evening up things by using the mesenteric as well as the smooth portion of the intestine. None of the cardinal qualities can be guaranteed when the rough side is employed. This is obvious to the man who has studied the manufacture of catgut.

In the Armour Laboratory nothing but the smooth, straight side of the gut is put into surgical ligatures. This material is sterilized chemically and thermically at opportune stages and finally the finished suture is, after being placed in tubes, subjected to a degree of heat that means death to all spores and organisms.

The Armour Non-boilable Catgut Ligatures are as flexible as a silk cord, and are of full strength and absolute sterility.

Specify Armour's Non-boilable Catgut Ligatures. You will be satisfied

PITUITARY LIQUID (Armour)

the Premier Product of the kind, 1 c. c. ampoules — surgical, ½ c. c. ampoules — obstetrical.

SUPRARENALIN SOLUTION 1:1000

Astringent and hemostatic
Stable and non-irritating.

Headquarters for the Endocrines
and other Organotherapeutics

ARMOUR AND COMPANY

CHICAGO

MEAD'S

LIVE FOOD*for Babies**There is none so good*

First Thought

BREAST MILK

Second Thought

FRESH COW'S MILK

Water

and

MEAD'S DEXTRI-MALTOSE*For your Convenience*

Pamphlet
on
Breast Milk



Pamphlet
on
Dextri-Maltose

MEAD JOHNSON POLICY

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA

Mention our Journal—it identifies you.

THE RHODE ISLAND MEDICAL JOURNAL

The Official Organ of the Rhode Island Medical Society
Issued Monthly under the direction of the Publication Committee

VOLUME VII {
NUMBER 6 } Whole No. 177

PROVIDENCE, R. I., JUNE, 1924

PER YEAR \$2.00
SINGLE COPY 25 CENTS

ORIGINAL ARTICLES

DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

By DR. JAY PERKINS,
PROVIDENCE, R. I.

Nothing in medicine is at an equilibrium. There is a constant progress but not an unvarying one and the whole truth is known in reference to but few things:

The science and practice of medicine is extremely complex, too complex for full understanding by the human mind with its present knowledge and capacity.

Probably no disease has been more studied than has tuberculosis and yet both as regards science and practice tuberculosis now presents a multitude of problems for both the scientists and practitioners.

Not many years ago when the campaign against tuberculosis got into fresh activity the cry went forth that the general practitioner was grossly at fault for not recognizing the cases earlier and definite signs and symptoms were given as meaning tuberculosis and anyone who dared to question these was considered as not knowing his business. These signs and symptoms were and are valuable in diagnosing tuberculosis but are now known to sometimes accompany other conditions than tuberculosis.

Now the pendulum swings the other way and some demand absolute proof, which frequently is hard to obtain, before admitting that a case is tuberculosis. For the patient the safest physician is the one who studies the case carefully, not making "snap" diagnoses, and who after such study if in doubt will acknowledge his doubt but advise treating doubtful cases as tuberculosis until doubt can be removed.

A half truth is not the whole truth and he who makes positive diagnoses without a careful study of the patient will make more mistakes than he who goes into the individual case thoroughly and

watches it longer without yielding to the impatience of the patient or his friends for an immediate "yes" or "no" as demanded by lawyers in a cross examination. All who diagnose tuberculosis make mistakes but the careful and thorough man fewer than the hasty. In all doubtful lung lesions tuberculosis should always be in mind but only use the label when research makes the diagnosis reasonably sure.

There is no sign (except the presence of the tubercle bacillus) nor any symptom present in tuberculosis which may not be present from some other cause than tuberculosis. Those having tuberculosis may and frequently do have other diseases also. Hence finding tubercle bacilli in the sputum of a sick person does not prove positively that the disease from which that person is suffering is tuberculosis.

The diagnosis of pulmonary tuberculosis is not a science, it is an art, a matter of judgment. He errs the least who has the most experience in examining not only those who have tuberculosis but also those who are suffering from other lung abnormalities, as well as healthy individuals, and who has the best powers of observation. The diagnosis of pulmonary tuberculosis is not a simple problem, it is most complex. Great emphasis used to be laid on certain rales or evidences of consolidation in certain places as meaning tuberculosis but tuberculosis can occur in any part of the lungs and you may have any kind of rales or no rales at all. Each case must be considered individually. Even in advanced cases the diagnosis is sometimes difficult. Dr. Ashe of Boston a few years ago reported the result of a large series of autopsies performed on patients who had died in hospitals for advanced cases of tuberculosis, and this showed that in 10% of the cases no tuberculosis could be found at autopsy. I have seen many cases sent into the hospital as advanced tuberculosis which were not tuberculosis. This was especially true of lung abscesses and operative cases of empyema which did not promptly recover. The X-Ray has done away with most of this.

We shall consider chiefly the diagnosis of cases which are early from the standpoint of noted

*Read before the Providence Medical Association, February 4, 1924.

symptoms. Of these some may be of long duration from an infection standpoint. Really incipient cases are rarely seen.

Of the things which help in a diagnosis the most important is the history. If in an individual case I had to depend on another for either the history or examination, I should decidedly prefer to use another's examination and take the history myself. The duration, not as the patient states it, but as drawn out by questioning, changes in strength or endurance, getting tired more easily, appetite, digestion, restfulness of sleep, afternoon flushing or rise in temperature, maintenance of flesh, changes in the disposition, pleasure or effort in usual duties are important items. In other words, look for any symptoms of a beginning toxemia. Another symptom is a cough, not what the patient calls a cough, but a regular "hack" mornings or after exertion, also hoarseness, at first intermittent. Spitting of blood is valuable in the history frequently but many thyroid or other endocrine disturbances may cause a little bloody sputum when the patient is exhausted or under a nerve strain. This differs from the clear blood or streaks of clear blood or dark lumps of tuberculosis and usually is present over a considerable time. Haemorrhages are from other causes than tuberculosis. In nine case out of ten the sudden onset of the spitting of clear blood means tuberculosis but the blood may come from other causes as mitral diseases, arterio-sclerosis, aneurism, cancer or the spontaneous opening of an unsuspected abscess. If it is from an abscess of course pus will follow the blood but the patient will be so frightened by the blood that he may not notice the pus.

The history as to exposure should be considered, also any preceding illness, especially such diseases as measles, whooping cough, typhoid or influenza, which are known to lessen resistance to tuberculosis. One of the most valuable things to consider is the onset of the symptoms. Tuberculosis *per se* rarely starts suddenly with marked symptoms in a previously healthy individual. We may get an acute pleurisy, haemorrhage or generalized tuberculosis in a previously latent case but this is not the ordinary case to be diagnosed.

For physical examination we have inspection, palpation, percussion and auscultation and in addition the tuberculin test, examination for tubercle bacilli and X-Ray examination. Inspection is of

value to one who has had extensive experience in physical examination but is of little value until one has formed a concept of tuberculosis by seeing many cases. The same is true of palpation.

The shape of the chest, the appearance of the skin and hair, the rigidity of muscles corresponding to the nerve reflexes of the affected area and the general appearance of the patient are suggestive but not pathognomonic. Pain about the chest may furnish valuable clues as to where especially to look for the trouble. A shifting pain I consider as neuralgic whether tuberculosis is present or not. A severe pain in an intercostal space with tenderness over the area of the pain and also over the nerve terminal without a friction rub almost surely has its origin in the intercostal nerve and is not tuberculosis. A pain persisting in one spot, whether constant or not, especially in an individual presenting any of the symptoms of a beginning toxemia should demand careful investigation and especially if a slight friction sound is heard accompanying it. Examiners differ in their acuteness in detecting certain things. Some, especially Pottinger, lay much stress upon palpation of certain muscle groups as indicating tuberculosis and I have had a man come into a clinic of children and by palpation tell which side of the child's chest the lesion was on while I could find no difference by palpation. He had never seen the children before yet agreed with my diagnosis made by other means.

The physical signs usually most relied upon in making a diagnosis of tuberculosis are obtained by percussion and auscultation. Percussion may be a great aid but if relied upon too much or not used very carefully may lead one astray. To be of value both sides of the chest must be in the same position, that is, no lateral binding nor twisting of the chest, and the muscles must be completely relaxed. Very little deviation from an even position or increased tension of a muscle or a group of muscles or uneven development of the muscles on the two sides of the chest will frequently give a distinct difference in resonance. In percussing it is important that the hammer stroke should be at right angles to the surface percussed and the pleximeter finger should be firmly and evenly placed. Whether the stroke should be light or heavy depends upon what is to be brought out, both should be used. A slight surface lesion

or moderate pleural thickening will be missed by heavy percussion alone while light percussion will not reach a deep lesion, as a peribronchial infiltration, even though quite extensive. Peribronchial infiltrations go longer undiagnosed than any other form of tuberculosis, according to my experience, and I have found that by standing the patient against a wooden door, as a sounding board, and using heavy percussion, a previously questionable dullness frequently becomes so marked as to remove all doubt. In percussing the bases, marking the line of dullness on quiet breathing then have the patient take and hold a deep breath, and percussing again we frequently find the line descending much more on one side than on the other. This, in absence of history of pneumonia on that side, directs further attention to the corresponding upper lobe. Inactive pleural lesions bring frequent accompaniments of a lung lesion elsewhere than directly under the adhesions.

Auscultation is the main reliance of the majority of physicians in diagnosing pulmonary tuberculosis and when many persons have to be examined in a short time, as was the case in army work, it gives the most information for the time spent of any means which can be employed. There are but few active cases which do not give changes in breath sounds or rales or both. To appreciate minor changes in breath sounds one needs to be familiar with the sounds in the normal chest, especially the changes in the quality of the sounds in different parts of the chest. In about five per cent. of chests there is normally harsher breathing at the right apex than the left. There is normally bronchial breathing over the main bronchi in front and to a less degree in the back. If from any reason, as by fluid, the lung is compressed, we frequently get a bronchial tone without consolidation. This may come either with a pleural or pericardial effusion. The normal vesicular murmur should be heard over all of the chest excepting the regions of the bronchi. Bronchial breathing is easy to recognize and so is the normal vesicular breathing. Between these there is a great variety of modifications and it is these modifications which sometimes give a great deal of valuable information and which, if taken by themselves, may cause a great deal of trouble by wrong interpretation. If for any reason, as tuberculosis, we have an infiltration of the lung tissue or a peri-

bronchial infiltration or an old scar in the lung or a thickened pleura, we get changes in the breath sounds. Perhaps there are real changes on both sides, when they are harder to estimate. There may be a real change on one side or only a comparative change in reference to the other side. The important thing here is to determine whether there is a real or a comparative change. A faulty position of the body, muscular pain, a scoliosis or a rigidity of muscles from nerve tension may give a comparative change in breath sounds simulating closely if not exactly those from real change in lung structure. As with percussion it is necessary to have complete muscular relaxation in order to have a satisfactory examination but in auscultation, even with relaxation, satisfactory breath sounds cannot be obtained unless there is also steady and even breathing, a little deeper than normal and avoiding any laryngeal or pharyngeal sounds. Other causes excluded, as far as possible, any changes in breath sounds indicate structural changes in the lung; whether these changes are due to tuberculosis or not must be determined by other means than the breath sounds. Besides the breath sounds we have the adventitious sound called rales. For the purpose of determining as to the presence or absence of tuberculosis it does not make any difference as to the kind of rale. Any rale is abnormal and any abnormal sound may be due to tuberculosis. As to the probability of tuberculosis being the cause, the location of the rale does make a difference. Rales limited to the base rarely and marginal rales practically never are of tuberculosis origin. The crackling rale from pleural adhesions, muscle sounds and the crackling of the skin under the stethoscope are sometimes mistaken for lung sounds. The latter two can usually be obliterated by change in position and complete relaxation. Someone has stated that the rales at the apex must be proved not to be due to tuberculosis while rales at the base must be proved to be due to tuberculosis. This is not exact but is a good working formula. While the rales due to tuberculosis are more frequent in some locations than others, when it comes to diagnosis this is of no great value because tuberculosis may develop in any part of the lung and the whole lung must be carefully examined. Also the causes of other lung lesions are common in these places where tuberculosis most commonly develops.

Whether any rales found are due to tuberculosis or not must be determined other factors, not by the rales themselves. One of the most important of these factors is the duration of their presence.

No examination of a chest for tuberculosis, except perhaps an advanced case, can be called an examination unless in auscultation the patient takes a prolonged expiration, coughs and takes a moderately rapid and deep inspiration. This sometimes brings out rales which can be obtained in no other way, and the closest we came to a sound pathognomic of tuberculosis is an explosion of fine rales thus obtained. All breathing during auscultation should be of sufficient force to cause rales when but little moisture is present and not sufficient to make the rales too transitory. It should be slightly more forceful than normal but not very forceful.

The most reliable sign of the presence of tuberculosis is the finding of the tubercle bacillus in the sputum. Any case having sputum should have an examination made for the tubercle bacillus and, if negative, repeated examinations so long as there is any doubt as to the diagnosis. Post influenzal infections, unresolved pneumonia, Streptococcus infection, syphilis and many other conditions frequently so closely resemble tuberculosis that in the case of negative sputum, great care should be taken before unreservedly stating such a case is tuberculosis, though this alone does not excuse treating such cases as non-tuberculous. On the other hand, finding tubercle bacilli in the sputum does not prove that the patient's whole trouble is due to tuberculosis.

The tuberculin test has value in some cases. In children it is of greater value than in adults. Some years ago I made quite a series of tests in our clinic for children suspected of having tuberculous infection, largely our fresh air school children, and several years later had those who reacted to the skin test but showed no demonstrable lesion of tuberculosis traced so far as possible and almost none of them had developed any further indication of infection. In adults I place the value on a negative test and on a marked reaction but on the whole get but little satisfaction from it. Perhaps because I do not use it enough.

The X-Ray is of distinct value when stereoscopic plates are used and one has skilled interpretation from both the roentgenologist and the

clinician. In the past few years there has been much improvement in the interpretation but at the best we have only a shadow to work with so far as the X-Ray itself is concerned. In an early case no shadow may be cast and, if one is obtained, in many cases it does not differ according to the infection. It merely confirms the physical examination that there is some lesion in the lung. It is frequently of great help by demonstrating a deep peribronchial infiltration and in showing multiple lesions or more extensive infiltration than the physical examination can determine. It will also show scars from a previous unsuspected infection. I should now find it hard work without the help of the X-Ray.

There are two sources of error to bear in mind. One is the proneness of the roentgenologist to call shadows which he can not otherwise explain as probably due to tuberculosis and the other is the tendency of a man seeing little excepting tuberculosis to call tuberculosis every shadow which resembles those he has known to be due to tuberculosis. As in the diagnosis of tuberculosis purely clinically one needs to be familiar with X-Ray plates from all classes of lung infection.

The following cases are reported to illustrate some of the difficulties in diagnosis:

Case No. 1, female, age 12, seen by me with Dr. Walsh in January, 1923, symptoms of several weeks duration. There was then consolidation of the left upper lobe which showed no indication of clearing up though the constitutional symptoms had improved markedly. There was evidence both for and against tuberculosis but the sudden onset and the improvement in her general condition, although the physical signs continued, together with the negative examination of the sputum led us to believe it was not a case of tuberculosis but we advised treating it as a potential case of tuberculosis. The signs persisted and she spent the summer at the Crawford Allen Hospital. She returned in the fall a picture of health but with the signs still persisting. An X-Ray taken at this time shows the whole left chest in shadow with numerous fibrous bands in upper lobe. The X-Ray report is "probably tuberculous" but the clinical history and physical examination indicates pleural thickening and fibrosis following pneumonia.

Case No. 2, male, age 23, farmer, sent to me in February, 1923, with the statement that the diag-

nosis of tuberculosis had been made and confirmed by X-Ray and the finding of tubercle bacilli in the sputum and would I advise him-as to where to go. History: Had some infection in February, 1922, followed by a cough all summer but was well through the fall. A bad cough started about three weeks before I saw him. Examination gave signs of some trouble in both lungs. Plans were made for him to go to some relative in the southwest. After considerable delay it was learned that he could not go there. And now, examination of the lungs was negative. The X-Ray which had been taken in a Massachusetts city was sent to me and there was a shadow in the center of each lung such as is common with non-tuberculous infections. Another X-Ray was made by Dr. Gerber which was negative as to any evidence of tuberculosis. He was very nervous, had marked tremor and had suffered from severe headaches earlier in life. His Vital Capacity was 4, with an estimated 4.1, Basal Metabolism plus 23%, Temp. 98, Pulse 90. He was in the country during the summer and felt well but nervousness and tremor persisted. His basal metabolism was again found and was plus 24%, Temp. 99, Pulse 98. He was then given X-Ray treatments and is improving finely. The last time I saw him the Temperature was 99, Pulse 80.

Case No. 3, female, age 25, stenographer. Had some blood in her mouth in June, 1923. She went to a physician in Providence who made a diagnosis of pulmonary tuberculosis and told her that she must go to the sanatorium at once. She immediately went to another physician across the street who said that there was nothing the matter with her. She spent the summer in the country and felt perfectly well. Went to work again in the fall and was well until November when some blood appeared in her mouth. She is not located in Providence and after this second appearance of blood, consulted a local physician who told her she was in danger of infecting those with whom she came in contact. She spent a week-end with a friend in Connecticut and, at her suggestion, was examined by a physician connected with a sanatorium there. He would give no positive opinion without an X-Ray which she could not stay to have taken. He sent her to the head of an institution in Rhode Island. After the examination, including X-Ray, he told her she had a shadow

at the left apex and that she must have sanatorium treatment at once or she would not get better and told her employer that he would be responsible for her life if he continued her in his employ. During her Christmas vacation she again visited the physician in Connecticut whom she had previously seen and he said she then had trouble in both lungs. I saw her January 5, 1924. History: Never strong, could never engage in athletic sports, would sleep all the time if she could, sleeps all day Sundays. Very nervous of late. When girls come into her room she wants to go out. She insisted that she never coughed and did not cough when the blood appeared. No sputum obtainable. Examination: Lungs and heart negative, Temp. 98.6, Pulse 92, B. P. 130/70. Of spare masculine build, flesh firm. She was so nervous from her experience that no reliable vital capacity nor basal metabolism readings could be obtained. Her dentist says that the condition of the gums could well explain the blood. X-Ray by Dr. Gerber is negative. A later chest examination was also negative. This patient has some functional disturbance, from her history and build probably in the endocrine system, to explain her sleepiness, nervousness and condition of gums.

This patient was in my office Saturday afternoon and on Monday I saw, Case No. 4, male, age 18, laying pipes for water works. This patient was sent to me by a laryngologist with the statement that he could find no throat trouble and that three physicians had found no lung trouble but that he had had the sputum examined and tubercle bacilli were found in very small numbers. History: Cough for four months, lost ten pounds but gained most of it back again. Did not know whether he had lost strength or not. Examination, dullness over left lung, also right apex and base. Dullness not marked on light percussion but on standing him against a door both chests gave a muffled resonance very marked on the left. Temp. 98, Pulse 100, B. P. 110/60, V. C. 2.4. Estimated 3.4. The X-Ray shows marked peribronchial infiltration of both lungs much more marked on the left. Part of this is old cicatricial tissue and part of it is recent.

Case No. 5, female, age 27 years, nurse. In summer of 1922 contracted a "cold" and a cough remained. Was seen by two men experienced in tuberculosis and she was sent to Wallum Lake,

with a diagnosis of probably tuberculosis, February, 1923. She remained at Wallum Lake for four months, her temperature rising to 99 or 100 three or four times a week for three months, becoming normal in the fourth month. After returning from the State Sanatorium she secured some light out-of-door work during the summer. When I saw her in September, 1923, the examination of the lungs was normal, B. P. 130/70, Pulse 100 and erratic, systolic murmur over mitral valve not transmitted. Thyroid slight bilateral enlargement extending back under the muscle and soft, Temp. 98.6, B. M. plus 21%, V. C. 2.5 as against estimated 3, X-Ray of chest negative as to tuberculosis.

Case No. 6, female, age 20 years, clerk in five and ten cent store. Sent to St. Joseph's Hospital at Hills Grove as a consumptive. Had two haemorrhages four years ago, then went a whole year without any. Since then has a haemorrhage about once in three months; worst ones are with menses. At the hospital her temperature was always normal. Examination of lungs negative excepting some dullness right base back and failure of the right lung to descend on inspiration. Sputum negative, Basal Metabolism plus 2%, V. C.—.8%. The build of the body suggested a mild degree of Dystrophia Adiposa Genitalis. X-Ray plates show an interlobar exudate between the lower and middle lobes of the right lung. While no mention was made of spitting anything excepting blood, questioning brought out the fact that something greenish, like pus, was expectorated mornings for two or three days after the haemorrhages. Also that her tonsils had been removed during the year preceding her first haemorrhage.

THE ROUTINE TREATMENT OF DIABETES MELLITUS.*

BY DR. A. A. HORNOR,
BOSTON, MASS.

Before talking about the routine treatment of diabetes mellitus I should like to remind you that by preventing obesity many and probably most

cases of diabetes can be prevented. For one to reduce one's chances of developing diabetes to a minimum, it is desirable

1. That prior to the age of thirty he keep his weight below the level of 10% above the average for his height and age, and that after the age of thirty, he keep his weight below the average for his height and age, and after the age of forty, 10% to 15% below the average for his height and age.

2. That after acute infections and surgical operations he avoid the excessive intake of sweets. It is far more important to reduce non-diabetic fat people than it is to take care of severe diabetes.

You all are probably familiar with Joslin's statement that "Granted there is one person in a thousand who has some inherent peculiarity of the metabolism which has led to obesity, there are 999 for whom being fat implies too much food or too little exercise, or both combined."

No longer is it common to find unsuspected sugar in the urine of a comatose patient. Most cases of diabetes who have any symptoms at all of diabetes get their urine examined either on their own initiative or by the first physician whom they consult. Each year more and more cases are being discovered before the development of symptoms. Probably very few cases of diabetes would be severe at the time of their discovery if we could educate every person to have his urine examined annually within a week of his birthday. Certainly the physician or surgeon who fails to examine the urine when first consulted by a patient is neglectful. The importance of these routine examinations of the urine has been repeatedly emphasized and I am sure requires no further words tonight.

What to do upon the discovery of sugar in the urine is a much harder question for the average physician or surgeon to answer. A diet yielding approximately carbohydrate 100 grams, protein 40 grams, fat 55 grams, calories 1055, will, I am sure, do no harm to a newly discovered case of diabetes mellitus. In order that you all might have such a diet at your disposal, I have passed around a mimeographed copy of such an initial diet. This diet has been prepared so that it could be followed without the employment of scales. Of course, much of the patient's time could be saved by the use of scales. (The most useful are the 500 gram scales with movable dial made by John Chatillon Sons, 85 Cliff Street, New York City.)

*Read before the Providence Medical Association, March 3, 1924.

In uncomplicated cases of diabetes discovered after the patient has passed the age of thirty, probably it is just as well to try to get the patient sugar free on the above diet at home, without the employment of insulin. Should such a patient not get sugar free within a week this diet could, at the end of six days, be reduced by the omission of fruit from breakfast and dinner. If the patient still showed sugar on the reduced diet it would probably be wise to give insulin. Where the sugar is discovered in a patient less than thirty years of age or in any complicated case, it is best to give insulin at once. A case should be considered complicated whenever there is:

1. A positive reaction for diacetic acid in the urine (Burgundy red color upon the addition of a few drops of U. S. P. solution of ferric chloride).
2. Fever.
3. Pulse rate above 90 per minute.
4. Any skin infection, for example, boils, carbuncles, gangrene.
5. Any condition requiring surgical interference.

These complicated cases require insulin immediately, and should have ten units of insulin at once. The urine should be tested hourly, and ten units of insulin repeated whenever these tests show the presence of sugar in the urine. When once a sugar free specimen of urine is obtained, the patient should have 20 grams of carbohydrate, preferably in the form of the juice of two oranges. In the febrile and surgical cases, it may be well to omit the vegetables and give in place of two servings of 5% vegetables, one orange; and in place of the chicken, an egg. Furthermore, the three meals can probably be best divided into six meals. Of course you know that the anaesthetic of choice in surgical diabetics is nitrous oxide and oxygen anaesthesia. Chloroform is probably the most and ether the next most dangerous anaesthetic. With the aid of insulin, operations which can be performed in no way except with ether need not be avoided, although they should be undertaken only after good preparation and where the patient can be very carefully watched and given the correct amount of insulin.

All complicated cases of diabetes are probably better off in a hospital. It is also desirable to have in the hospitals those patients who are less than thirty years of age, because with them it is ad-

vantageous to get the urine sugar free quickly, in the same way that one would handle a complicated case.

When using insulin in the home, it is probably best to begin with five units one-half hour before each meal, and continue this for three days unless the patient's urine gets sugar free within that time. If the patient's 24-hour urine is not sugar free at the end of three days on five units of insulin three times a day, the insulin can be increased to ten units three times a day. If the urine is not then sugar free, you can be sure there is a complication or the diet is not being followed as prescribed. In this event, hospitalization is indicated.

When once the urine is sugar free, and in any event when the patient is taking 15 units of insulin three times a day, it is well to increase his diet with a view to getting him on to his permanent diet. Probably it is not wise to make the jump to the permanent diet all in one day. Usually, however, it can be done safely within a week. Probably you all have learned how to get the urine of your patients sugar free and are more interested in getting them on to the proper diet for the maintenance of their strength permanently.

The permanent caloric diet is determined by the patient's weight, height, and age. As a rough outline to be varied in the individual cases, two tables have been constructed and passed around. One of these tables I have called "Maintenance Diets for Diabetics of Given Height and Weight." This table shows for a given height the probable desired weight range. If the body weight of the diabetic is below or within this range, then he had best be given a diet of the approximate caloric value shown on the line with the weight (35 calories per kilogram of body weight). If the diabetic weighs more than the upper figures shown on the line with his height, then the thing to do is to give him the diet shown for his weight on the other table "Undernutrition Diets for Fat Diabetics" (approximately 20 calories per kilogram of body weight). The obese diabetic should lose four to six pounds the first month, one to four the second; then one to two pounds a month. Should the loss in weight be too rapid, the milk in the patient's diet should be changed to 20% cream (medium); if still too rapid, the butter should be increased to 30 grams. If still too rapid, the cream should be doubled. Then bacon should be

increased by 15 grams, and again by 15 grams if the loss is still too rapid; the oil, 15 grams, and oil again, 15 grams should be added if necessary.

When once the patient is on his permanent diet, the insulin should be adjusted so as to keep the 24-hour urine sugar free. It will found of great value when there is any difficulty in adjusting the amount of insulin, or the patient seems to be requiring extraordinarily large doses of insulin to divide the day into four parts.

1. From breakfast to noon.
2. From noon meal to evening meal.
3. From evening meal to 9 p. m.
4. From 9 p. m. to breakfast.

Then have the urine for each of these periods saved separately and tested for the presence of sugar. If sugar shows it means that at the meal preceding the periods, the patient received either too little insulin or too much food. In this connection it is valuable to remember that breakfast is the most difficult meal to handle and in severe cases it may be necessary to give as little as one-sixth of the total carbohydrate for the day at breakfast.

When once the urine has been sugar free for three days on a constant diet and insulin intake, the total number of units of insulin taken each day should be reduced. The simplest thing to do is to omit two units a day from the dose taken before the noon meal until the patient is taking none in the middle of the day, or else shows sugar. If the patient shows sugar while still taking some insulin at noon, possibly a corresponding increase in the morning dose of insulin will do away with the necessity for the noon dose. This should be tried. When once the patient is able to get along on two doses of insulin a day, it is well to try in a like manner to get rid of the afternoon dose. Very few patients will be found to require more than ten units of insulin twice a day.

The diets which have been given you and the advice about insulin is all based upon the belief that the diabetic should be given a diet on which he will be strong and happy. Most diabetics are not happy with less than 100 grams of carbohydrate. Probably a gram of protein per kilogram of body weight is the optimum amount of protein. Very few thin diabetics will fail to gain on 35 calories per kilogram of body weight. Many will gain too fast on this, and if so, fat should be

omitted from their diet until they fail to gain faster than the desired rate. Contrarily, if they do not gain fast enough, more fat should be added. Of course no one yet knows what is the ideal diet for a diabetic taking insulin. Joslin gives them roughly a minimum of 75 grams of carbohydrate, a gram of protein per kilogram of body weight, and 30 to 35 calories. Fitz gives them 50 grams of carbohydrate or less. Allen gives 100 grams of protein and sufficient fat to make them gain weight, and only enough carbohydrate to prevent acidosis. Newburgh gives much less protein than any one else and relatively more fat. Barach, in Pittsburgh, has recently published a most interesting plan in which his desire is to give half the normal amount of carbohydrate, a gram of protein per kilogram of body weight, and 30 calories per kilogram. He reduces his carbohydrate so long as there is sugar in the urine, and increases the fat to take care of the caloric deficit. He stops this reduction in carbohydrate and increase in fat when the ratio of carbohydrate to fat reaches 1:3, and then gives insulin to take care of the carbohydrate.

SUMMARY.

1. In uncomplicated cases above the age of thirty there is no urgency about getting the urine sugar free.
2. In complicated cases and in all diabetics less than thirty years of age it is important to promptly rid the urine of sugar.
3. Insulin is indicated in all complicated cases, in cases less than thirty years of age, and in any case which does not get sugar free in a week on a diet containing 100 grams of carbohydrate, and not more than 30 calories per kilogram body weight.
4. Fat diabetics should be undernourished so as to lose weight gradually to the desired level.
5. Diabetics not overweight need a diet containing 30 to 35 calories per kilogram, and one gram protein per kilogram body weight.
6. Most diabetics can best be given 100 grams of carbohydrate and at the same time the desired protein and calories.
7. When once the urine has been made sugar free it should be constantly kept sugar free. The amount of insulin to give is the minimum amount which will keep the urine sugar free when the desired diet is given.

FOODS FOR DIABETICS

Water, clear broths, coffee, tea, saccharine, vinegar, pepper and salt can be taken without allowance for food content.

"5% VEGETABLES"

Contain 1-5% carbohydrate, average yield to man = 3% carbohydrate

Lettuce	Tomatoes
Cucumbers	Brussels Sprouts
Spinach	Water Cress
Asparagus	Sea Kale
Rhubarb	Okra
Endive	Cauliflower
Marrow	Egg Plant
Sorrel	Cabbage
Sauerkraut	Radishes
Beet Greens	Leeks
Dandelion Greens	String Beans canned
Swiss Chard	Brocoli
Celery	Artichokes canned
Mushrooms	

"10% VEGETABLES"

Contain 3-10% carbohydrate, average yield to man = 6% carbohydrate

String Beans	Beets
Pumpkin	Carrots
Turnip	Onions
Kohl-Rabi	Green Peas canned
Squash	

FOOD VALUE IN GRAMS AND CALORIES.

30 Grams 1 oz. Contain Approx.	Carbo- hydrate	Protein	Fat	Calories
	G.	G.	G.	
Vegetables 5%	1	0.5	0	6
Vegetables 10%	2	0.5	0	10
Potato	6	1	0	28
Bread	18	3	0	84
Oatmeal, dry wgt.....	20	5	2	118
Milk	1.5	1	1	19
Meat (cooked, lean)....	0	8	5	77
Fish (boiled)	0	6	0	24
Chicken (cooked, lean)..	0	8	3	59
Cheese	0	8	11	131
Bacon (cooked)	0	5	15	155
Cream, 20% medium.....	1	1	6	62
Cream, 40% heavy	1	1	12	116
Butter	0	0	25	225
Oil	0	0	30	270
Brazil Nuts or Pecans...	2	5	20	198

Unweighed Articles.

Shredded Wheat, 1.....	23	0	0	104
Uneddas, 2	10	1	1	53
Egg, 1	0	6	6	78
Oysters, 6	4	6	1	49
Orange, 1 small.....	10	0	0	40

TABLE OF PERMITTED SUBSTITUTIONS.

300 Grams 5% vegetables = 2 average servings 5% vegetables = 150 grams 10% vegetables = 1 average serving 10% vegetables = 100 grams orange = 1 small orange = 2 Unedda biscuits = $\frac{1}{2}$ shredded wheat biscuit = 15 grams oatmeal dry weight = 120 grams oatmeal after cooking = 15 grams white bread.

Meat 30 = lean of 1 lamb chop = egg 1 = boiled fish 40 = butter 6 = cheese 30.

Orange 100 grams (1 small) = grapefruit 200 grams ($\frac{1}{2}$ small) = strawberries 150 grams = peaches 75 grams = blackberries 100 grams = blueberries 65 grams = banana 50 grams.

20% cream 240 ($\frac{1}{2}$ pint) = medium cream 240 ($\frac{1}{2}$ pint) = 40% cream 120 ($\frac{1}{4}$ pint) = heavy cream 120 ($\frac{1}{4}$ pint).

Bacon 30 = 4 strips fried crisp, 1 inch wide, 4 inches long, $\frac{1}{8}$ inch thick.

Butter 30 = oil 25.

INITIAL DIET FOR UNCOMPLICATED CASES OF DIABETES MELLITUS.

Yielding approximately:

Carbohydrate	Protein	Fat	Cal.
100	40	55	1055

Eat and drink according to following schedule and eat and drink nothing else.

Drink 1 glass of water every hour when awake.

Salt, pepper, vinegar and saccharine may be used as desired.

Breakfast—8 a. m.: 1 shredded wheat biscuit, 1 small orange, 1 egg—boiled or poached, $\frac{1}{2}$ glass (3 ounces) medium cream; clear tea, coffee, broth or water as desired.

Dinner—12 m.-1 p. m.: 2 servings 5% vegetables, 1 small orange, 2 Unedda biscuits, roast chicken—3 x 3 x $\frac{1}{8}$ in., $\frac{1}{4}$ glass medium cream; clear tea, coffee, broth or water as desired.

Supper—6-7 p. m.: 2 servings 5% vegetables, 1 small orange, 2 Unedda biscuits, 1 egg—boiled or poached, $\frac{1}{4}$ glass medium cream; clear tea, coffee, broth or water as desired.

Substitutions.

Roast chicken 3 x 3 x $\frac{1}{8}$ in. = roast beef 3 x 2 x $\frac{1}{4}$ in. = lean of 1 lamb chop.

1 Small orange = $\frac{1}{2}$ small grapefruit = $\frac{1}{2}$ banana = $\frac{1}{2}$ small apple = 2 Unedda biscuits = $\frac{1}{2}$ shredded wheat biscuit.

1 Shredded wheat biscuit = 3 Triscuit = 4 Unedda biscuit = 1 average serving of oatmeal.

MAINTENANCE DIETS FOR DIABETICS OF GIVEN HEIGHT AND WEIGHT.

Height ft. in.	Weight pounds	Carbohydrate	Protein	Fat	Calories	5% Vegetables	Orange	Shredded Wheat Biscuit	Uneda Biscuit	Eggs	20% Cream	40% Cream	Bacon	Butter	Meat	Olive Oil	Cheese	Brasil Nuts or Pecans
						Grams										Grams		
4 3	101-105	101	48	116	1640	:600	300	1	4	2	240		30	40	30			
4 3	106-110	101	48	124	1712	:600	300	1	4	2	240		30	50	30			
4 9	111-115	101	51	132	1796	:600	300	1	4	2	240		45	50	30			
5	116-120	101	52	138	1854	:600	200	1	6	2	240			60	60	15		
5 1	121-125	101	55	146	1938	:600	200	1	6	2	240		15	60	60	15		
5 2	126-130	101	57	153	2009	:600	200	1	6	2	240		30	60	60	15		
5 3-4	131-135	101	60	161	2093	:600	200	1	6	2	240		45	60	60	15		
5 5	136-140	101	61	171	2187	:600	200	1	6	2	240		30	60	75	30		
5 6	141-145	101	65	179	2275	:600	200	1	6	2		240	30	45	90			
5 7	146-150	101	68	187	2359	:600	200	1	6	2		240	45	45	90			
5 8	151-155	101	69	194	2426	:600	200	1	6	2		240	30	60	105			
5 9	156-160	101	72	202	2510	:600	200	1	6	2		240	45	60	105			
5 10	161-165	101	73	211	2595	:600	200	1	6	2		240	30	60	120	15		
5 11	166-170	101	77	217	2665	:600	200	1	6	2		240	30	60	120	15	15	
6	171-175	101	80	225	2749	:600	200	1	6	2		240	45	60	120	15	15	
6 1	176-180	102	83	235	2855	:600	200	1	6	2		240	45	60	120	15	15	15
6 2	181-185	102	83	240	2900	:600	200	1	6	2		240	45	60	120	20	15	15
6 3	186-190	103	85	250	3002	:600	200	1	6	2		240	45	60	120	20	15	30
6 4	191-195	103	91	256	3080	:600	200	1	6	3		240	45	60	120	20	15	30
6 5	196-200	103	91	266	3170	:600	200	1	6	3		240	45	60	120	30	15	30

UNDERNUTRITION DIETS FOR FAT DIABETICS.

Fat Diabetics Weighing	Carbohydrate	Protein	Fat	Calories	5% Vegetables	Orange	Shredded Wheat	Uneda	Eggs	Milk	Meat	Butter	Bacon	Cheese
100-110	99	48	38	930	:600	200	1	6	2	120	60	10		
111-120	99	54	44	1008	:600	200	1	6	3	120	60	10		
121-130	99	57	52	1092	:600	200	1	6	3	120	60	10	15	
131-140	99	63	62	1206	:600	200	1	6	3	120	75	10	30	
141-150	99	67	68	1276	:600	200	1	6	3	120	90	15	30	
151-160	99	71	83	1427	:600	200	1	6	3	120	105	30	30	
161-170	99	73	86	1462	:600	200	1	6	4	120	90	30	30	
171-180	99	77	92	1532	:600	200	1	6	4	120	90	30	30	15
181-190	99	81	97	1593	:600	200	1	6	4	120	90	30	30	30
191-200	99	89	115	1787	:600	200	1	6	4	120	120	45	30	30

DISCUSSION OF DR. HORNOR'S PAPER
ON "THE ROUTINE TREATMENT OF
DIABETES MELLITUS."

DR. DEWOLF: Mr. President, Dr. Burgess's report of cases and Dr. Horner's paper has shown what can be done with cases of diabetes. As I

listened to them I was more and more impressed with the thought that the men who are handling these complicated cases should be men who are dealing with this subject more as a specialty, dealing constantly with it. After all that was said it is pretty hard for one of us to add very much. However, I would like to go back a little bit and

explain that, although it may be presupposed, we always find a case of diabetes that comes into our office. I venture to say that we do not always find sugar in every case, and it won't do us a bit of harm to have urged upon us the habit of thoroughly examining the urine of every case that comes in to us; and I wish to suggest the fact that in examining for sugar it is a pretty good idea to very thoroughly boil the test tube because it is perfectly easy to miss the examination by not boiling thoroughly enough and conclude that there is no sugar when it does exist.

The fact remains, as Dr. Hornor has said, that 90% of the cases of diabetes do not need insulin treatment. The cases that do, it is undoubtedly right to send to the hospital to begin the treatment, and when we get those cases in the hospital it is not always easy to say whether or not we shall use insulin, so many of them can be kept sugar free on a very sufficient diet, and so many of them it is difficult to follow after they come out. It is a very difficult thing to start out with insulin and run the diet up to a sufficient maintenance and have the patient go out without knowing it will be continued. That is rather clearly in my mind, as on the last service I had we had a case which we gave insulin to and ran the diet up until it was sufficient to make that person exist when he went out. The patient got away from us, and was brought back later in a coma.

There was a case of coma came in to us which, perhaps, has no very great significance; an old lady of sixty. She received insulin treatments which succeeded, and was kept on ten units four times a day over a period of three weeks, and felt to be doing and was doing very well, and things were going very well with us, and then, unfortunately, she developed a septic condition in the shoulder and suddenly went out.

I feel that we certainly can learn a great deal from hearing such papers as this, and at the same time I feel that the problem is still difficult enough, where we can very easily send diabetics which are complicated to men who are competent to take care of them, to do so; but it is very difficult in the outlying districts to find men of that type.

I think I should like very much to have had Dr. Hornor perhaps say a little more about the treatment of patients who did not need insulin, and had him dwell a little more on that. Perhaps that

comes a little more in a man's general practice that he does not feel that he has to turn over.

* * *

DR. WESTCOTT: I wish first to felicitate the members of the Society on the opportunity of hearing such a paper as we have had here tonight. It was a most excellent paper on this subject, which will be most appreciated by those who are doing work on this line. Following all we have heard tonight it would seem futile to attempt to add anything more.

I was glad to hear Dr. DeWolf emphasize the danger of sending them out with too high insulin. We have been trying to get the patients down to the minimum amount at the hospital, feeling they were much safer that way than subject to the possible calamities Dr. DeWolf suggests, and even if it does not go so far as going into coma, I feel that every time a diabetic slips back they do damage.

Of course the most spectacular work insulin is doing is in coma cases, and that has been pretty well brought out tonight. Another phase of it that appeals to me is the way you can break the vicious cycle with diabetic gangrene. The gangrene renders it more difficult to get sugar free. A few months ago I was called to see the case of an old lady about sixty-five, who had had diabetes, as she knew, about five years, but neglected treatment. She had about 5% in the urine. Two toes were absolutely black and there were several large patches of gangrene on the foot and ankle. One of these cases, if we had seen it a few years ago, we would have said she would die if we operated and die if we didn't. She made a good recovery, but two or three days after operation showed acidosis, but that cleared up finally under insulin, and when she left the hospital stopped the insulin and she is now living perfectly happy, and doing well.

In this subject of diabetes there are so many advances that it is very difficult for the average man to keep up with the leaders, and for that reason this paper in such a practical way is especially valuable to our Society.

* * *

DR. FULTON: After this demonstration of cases and the excellent papers and discussion we have listened to, there is not very much left to say. There are one or two points that might be brought

out with reference to the treatment of cases without the use of insulin. It is sometimes very difficult to persuade a patient that he does not need insulin and is better off without it, and I think that is part of the duty of a man to try to convince these individuals that they are not only just as well off and better off without it, but are fortunate to be able to get off without it. They seem to be begging for it sometimes. One patient did not need it, but said that if I did not get it for her she was going to get it somewhere else.

Another point I would refer to. I had a recent experience that made me very unhappy for a few hours. A patient of mine, a nurse, was very much opposed to going to the hospital. She had access to the dietary kitchen at the hospital and was put on a vegetable diet, and following that they asked me to see her at once. I did, and found she had developed a very marked acidosis and on the verge of going into coma. After a few treatments she was better and acid free, and perfectly satisfactory otherwise. There were one or two things in that case that should have put me on my guard. The girl had been exposed to the cold, and that was one thing that precipitated it. It is a thing that we do not often see, and unless one is on his guard it is very easy to get into quite serious trouble.

* * *

DR. MATHEWS: I would like to speak of an experience that came to my notice within a comparatively short time, of a woman who was admitted to the hospital in a comatose state and a little sugar was found in the urine, and the internes were trying to give insulin at once, but on second thought the opportunity existed of examining the urine for sugar and it was found that the patient had rather a low sugar condition than a high one. In a case of that sort, probably the giving of insulin would have been a serious mistake, and fortunately it was not given. The woman did not have a diabetic coma but one resembling it very much. It is very difficult to tell the difference sometimes.

* * *

DR. HORNER: I want to thank Dr. DeWolf for emphasizing one or two points which I was very

glad to have emphasized. First, that we all must examine the urine. Any physician who does not examine the urine in a patient who consults him for the first time is neglectful, and he must feel that a patient who has been away six months is consulting him for the first time.

Then the question of patients going out of the hospital with large doses of insulin and then coming back in a coma and dying a few hours afterward. I think that is our fault in private practice, and the hospital's fault in hospital practice. No patient taking insulin is safe away from the doctor for more than two weeks. We must have a report and must know they are all right. I feel just as definitely responsible for that patient's death as if I had not given him insulin the first time I saw him.

With regard to routine treatment without insulin, I tried to say that if every diabetic should be put on a diet of twenty to thirty per kilogram of body weight, if they can take that diet without insulin, they are better off without it. The quickest way to persuade them that they do not need insulin is to give them insulin. After one or two days in the hospital with it, they want to know when they can stop it.

There is no doubt but that every time a diabetic has a calamity he lowers his tolerance. If they are less than thirty years of age and their tolerance is near one hundred grams, we want to keep it there.

Patients in coma we can help if we help them promptly. I have not seen a patient who had been in coma thirty-six hours who got well. It is important for us to make that diagnosis. One thing I demand in diabetic coma is that the skin be dry. In differentiating a cerebral haemorrhage from diabetic coma you will always find in the latter case that the skin is dry. Others will have a moist skin.

About gangrene, you all know that gangrene is preventable. Japanese do not have gangrene, they do not wear shoes, and they keep their feet clean. A person who develops gangrene has had a dirty foot. The most important thing is a daily bath of the foot, massaging the foot to keep it soft. Corns must not be cut. Nails should be filed rather than cut. Diabetes should be treated in an urgent manner, and people should have the best surgery at the earliest possible moment.

THE RHODE ISLAND MEDICAL JOURNAL

Owned and Published by the Rhode Island Medical Society
Issued Monthly under the direction of the Publication Committee

FREDERICK N. BROWN, M.D., *Editor*
309 Olney Street, Providence, R. I.

CREIGHTON W. SKELTON, M. D., *Business Manager*
266 Broad Street
Providence, R. I.

ASA S. BRIGGS, M. D.
ALEX M. BURGESS, M. D.
W. LOUIS CHAPMAN, M.D.
JOHN E. DONLEY, M. D.
ROLAND HAMMOND, M. D.
J. W. LEECH, M. D.
NORMAN M. MCLEOD, M. D.
ALBERT H. MILLER, M. D.
DENNETT L. RICHARDSON, M.D.
ARTHUR H. RUGGLES, M. D.
C. S. WESTCOTT, M. D.

*Associate
Editors* *Committee on Publication*

FREDERICK N. BROWN, M.D., *Chairman*
CREIGHTON W. SKELTON, M.D.
JOHN F. KENNEY, M.D.
ARTHUR T. JONES, M.D.
J. W. LEECH, M.D.

Advertising matter must be received by the 10th of the month preceding date of issue.

Advertising rates furnished upon application, to the business manager, CREIGHTON W. SKELTON, M.D., 266 Broad Street, Providence, R. I.

Reprints will be furnished at the following prices, providing a request for same is made at time proof is returned: 100, 4 pages without covers, \$6.00; each additional 100, \$1.00. 100, 8 pages, without covers, \$7.50; each additional 100, \$2.80; 100, with covers, \$12.00; each additional 100, \$4.80. 100, 16 pages, without covers, \$10.50; each additional 100, \$3.00; 100, with covers, \$16.00, each additional 100, \$5.50.

SUBSCRIPTION PRICE, \$2.00 PER ANNUM. SINGLE COPIES, 25 CENTS.

Entered at Providence, R. I. Post Office as Second-class Matter.

RHODE ISLAND MEDICAL SOCIETY

Meets the first Thursday in September, December, March and June

ARTHUR T. JONES	<i>President</i>	Providence
WM. F. BARRY	<i>1st Vice-President</i>	Woonsocket
HALSEY DEWOLF	<i>2nd " "</i>	Providence
JAMES W. LEECH	<i>Secretary</i>	Providence
J. E. MOWRY	<i>Treasurer</i>	Providence

DISTRICT SOCIETIES

KENT

Meets the second Thursday in each month

G. HOUSTON	<i>President</i>	Arctic
C. S. CHRISTIE	<i>Secretary</i>	Riverpoint

NEWPORT

Meets the third Thursday in each month

NORMAN M. MACLEOD	<i>President</i>	Newport
ALEXANDER C. SANFORD	<i>Secretary</i>	Newport

Section on Medicine—4th Tuesday in each month, Dr. Charles A. McDonald, Chairman; Dr. C. W. Skelton, Secretary and Treasurer.

R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of *President* Dr. F. Nulton Bigelow, President; Dr. Jeffrey J. Walsh, Secretary-Treasurer.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. James B. Littlefield, Esq., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

PAWTUCKET

Meets the third Thursday in each month excepting July and August

STANLEY SPRAGUE	<i>President</i>	Pawtucket
GEORGE E. RONNE	<i>Secretary</i>	Pawtucket

PROVIDENCE

Meets the first Monday in each month excepting July, August and September

GEORGE W. VAN BENSCHOTEN	<i>President</i>	Providence
P. P. CHASE	<i>Secretary</i>	Providence

WASHINGTON

Meets the second Thursday in January, April, July and October

F. E. BURKE	<i>President</i>	Wakefield
WM. A. HILLARD	<i>Secretary</i>	Westerly

WOONSOCKET

Meets the second Thursday in each month excepting July and August

A. A. WEEDEN	<i>President</i>	Woonsocket
THOMAS S. FLYNN	<i>Secretary</i>	Woonsocket

EDITORIALS

THE EDUCATION OF HOLMES.

Of Louis, called the father of medical statistics, Oliver Wendell Holmes said, "He was a man whom any student might be happy and proud to claim as his teacher and friend." The influence of this teacher had a pronounced effect on the career of Holmes. He studied with Louis for two years—1833-1835. Applying Louis' statistical test to the condition of puerperal fever, he published, in 1843, his paper on "The Contagiousness of Puerperal Fever," upon which rests his claim to emi-

nence for an original and valuable contribution to medical science and the cause of humanity. This paper showed that puerperal fever is so far contagious as to be frequently carried from patient to patient by physicians and nurses. The proof was statistical. The general mortality of obstetrical cases was about four per cent. In the practice of many obstetricians puerperal fever occurred rarely or not at all. In the practice of some particular obstetricians cases of puerperal fever followed each other consecutively and deaths occurred with great frequency. One practitioner lost sixteen of the thirty women that he delivered within a month,

another had forty deaths from puerperal fever within nine months. Series after series of similar cases were collected and analyzed until the proof became overwhelming. Then came a howl of protest from eminent obstetricians who preferred to attribute their puerperal mishaps to accident, chance, or Providence, rather than themselves take the blame. Holmes replied by republishing his original paper with an introduction for medical students in which he showed that the chance of a series of sixteen fatal cases of puerperal fever occurring within a month in the practice of a single obstetrician was less than one in a million, million, million, million. The statistical proof could not be shaken. The influence of the teaching of Louis was often evident in the career of Holmes but in no instance was it more striking than in the one cited.

STOP! LOOK! AND LISTEN!

When the sign "Stop, Look and Listen" confronts you, you are inclined to think of an unseen danger which you may avert by ordinary precautions. It is not a sign of calamity, but it is a sign of warning. It is used here to catch your attention in order that a few pertinent facts concerning a situation which obtains in Rhode Island today may be brought as forcibly as possible to your attention.

Do you, as physicians in the State of Rhode Island, realize that the State Public Welfare Commission has to house, clothe, feed, educate, reform, and completely supervise more than four thousand (4,000) individuals, and that with all the employees required, the number approaches five thousand (5,000)? This group of four thousand (4,000) human beings is made up of convicts of all sorts, mad men, the infirm, incorrigible children, and perfectly innocent orphans and dependents.

One body of the Legislature is divided into two groups who have been continuously wrangling among themselves for more than four months and have for upwards of three months persistently refused among other government activities, the Public Welfare Commission any funds to carry out this tremendous work.

Of these four thousand State wards, approximately 80% are under the direct supervision of medical executives. Regardless of party politics, what do you as physicians propose to do in the

way of support for these members of your profession who are attempting to handle this job?

You and the public must be protected against murderers, thieves, and lunatics and you, as well as the whole public, must realize your duty to the unfortunate dependents as well. These, perhaps, are rather strong terms to use but as words of description, they are exactly correct.

This situation represents one where the proverbial ounce of prevention will be worth more than a pound of cure. The institutions caring for these four thousand wards are holding together pretty well but there are already signs of disintegration and relief must come before long. You of the medical profession, who are perhaps in a position to understand better these problems than that of any lay organization, are the group from whom early protest should come. These four thousand wards are your wards, it is your problem, the Public Welfare Commission is only your servant.

Think it over, and to use a common expression, "Do something," and for your own sake, as well as that of the general public and to show your genuine interest and support of medical men who are handling a large part of this problem, "Do it now."

SOCIETIES

PROVIDENCE MEDICAL ASSOCIATION.

A meeting of the Providence Medical Association was held Monday, May 5, 1924, at 8:45 p. m., at the Medical Library Building, with the following program:

1. Peptic Ulcer (Continued from April meeting.) The discussion was opened by Dr. D. F. Gray and Dr. G. A. Matteson.

2. Diagnosis of Diseases of Bladder, Ureter and Kidney with Roentgenological case reports by Dr. V. O. Oddo. The discussion was opened by Dr. H. J. Corrigan, Dr. J. E. Kerney, and Dr. Eric Stone. A collation followed.

PETER PINEO CHASE, M.D.

Secretary

RHODE ISLAND MEDICO-LEGAL SOCIETY.

The regular April meeting of the Medico-Legal Society was held at the Medical Library, 106 Francis Street, Providence, on Thursday, April 24, 1924, at 5 p. m. Hon. Herbert L. Carpenter, Attorney-General of Rhode Island, spoke upon

"Common Sense in Our Treatment of Delinquents." A collation followed.

JACOB S. KELLEY, M.D.
Secretary.

KENT COUNTY MEDICAL SOCIETY.

The regular monthly meeting of the Kent County Medical Society was held April 10, 1924, at the office of Dr. W. H. Dyer. The meeting was called to order by the president, Dr. Gilbert Houston, in chair. Records of the last meeting were read and approved.

Dr. Houston reported a very interesting case of pneumonia following an uncomplicated delivery, death ensuing within thirty-six hours after delivery.

Dr. Long reported a case of extensive sloughing of tissue due to the excessive use of adrenalin chloride for relief of bronchial asthma. Patient died in apparently septic condition.

Dr. J. W. Leech of Providence read a very practical paper entitled "First Aid in Industrial Accidents to the Eye by the General Practitioner."

After a general discussion by those present, the meeting adjourned to enjoy a collation furnished by the host, Dr. Dyer.

There were present six members and two guests.

CHARLES S. CHRISTIE, M.D.
Secretary

CASE REPORTS

PRESENTATION OF EXTREME CASES OF DIABETES BY DR. ALEX M. BURGESS.*

(PRESENTING PATIENT)

DR. BURGESS: This patient, whom I saw first four years ago, is alive now and fourteen years of age. Had diabetes for a couple of months, went along perfectly well on ordinary treatment or relative starvation and building up on diet to a reasonable point, and chart shows in general what summary of condition was as he went along. I saw him during the end of 1919. For the first three years, to 1922, he did very well, and during 1922 I saw him practically not at all. He then came to

me in January, 1923, and I will tell you something about it. He showed when he came to me that he had been off his diet during 1922, showed diacetic in urine and high degree of sugar. He did not do well, and continued to show sugar unless his diet was cut very far down. Insulin was just beginning to come in and he was referred from the Rhode Island to the Brigham Hospital. He was given 35 calories to a kilogram, then sent back to Rhode Island where he was given insulin. Is now a patient at the hospital on fifth admission to the wards of the Rhode Island. This is what happened to him. (Shows and explains chart.)

In 1919 he was easily established on a tolerance of 100 grams, maintaining that through 1921. I did not see him at all during 1922. When he came back he showed sugar in urine, but could be kept sugar clear. In March, 1922, his tolerance was found to be about 50 grams, estimated in May still about 50. Had him under observation all the time, getting insulin in increasing amounts and in September he was in trouble again. Every now and then he would come in with a 4+ diacetic acid in urine. Increased his insulin nine to fourteen to twenty, and in September, due to something or other, he seemed to get into trouble. Was admitted to the hospital again and put back on low amount of insulin, and his tolerance was then about 35. He was at that time in very miserable condition, way below weight. In 1920 he weighed 64 pounds; in 1921, 65. In January he was down to 50. Got along pretty well on that amount of insulin, and went to pieces and weight went away down. In spite of being on a diet, he could not be kept sugar free all the time, and his insulin has been increased and then got up to 28 units, and then the U-20 instead of the H-20 came out. I have represented in the terms of the original Lilly unit. Now he is getting 85 units of insulin in terms of the original Lilly unit. Now it is zero. A unit of U-20 will take care of two grams of carbohydrate. He is getting sufficient insulin to take care of his carbohydrate intake.

An interesting thing to me is that in spite of the fact that since September we have not been able to keep him sugar free inside of twenty-four hours, nevertheless, from an inveterate invalid he has passed up to the weight of eighty pounds and gone back to school within a year and felt very good. (Refers to chart.) In spite of 60 units of

*Presented before the regular monthly meeting of the Providence Medical Association, Monday evening, March 3, 1924.

H-20 we cannot keep him sugar free all day, and in spite of that his weight has gone right up. He has been giving himself insulin during the last year, and keeps his own chart, which he brings in every week. He has had a septic arm and been under Dr. Westcott's care, and given insulin at midnight and kept sugar free all through the twenty-four hours.

DR. MOWRY: Dr. Burgess, what is the ultimate prognosis?

DR. BURGESS: I do not want to discuss it very freely now, but we can only say this, that he is skating on thin ice. Acute respiratory infection may make all the difference in the world.

* * *

(Dr. Burgess introduces another patient, a Mr. S—.)

This young man is now at work and working harder, practically, than any of us. He came into the hospital and showed sugar practically all the time. He was given insulin and placed on a diet of 2075 calories, and the insulin has been reduced and he stays on the same diet. Is now taking 2217 calories, working hard every day, and is sugar free all the time, all around the clock.

* * *

(Dr. Burgess introduces a third patient, a Mrs. M—.)

You would not imagine to see her that she was a patient who looked the limit a few months ago. Every week she brings us a chart almost the exact copy of the other. She is sugar free only about twelve of the twenty-four hours, and sometimes not even that. I believe she has no pancreatic function whatever, and yet she is living right along and doing a good job of it. She has severe insulin reactions, where as the boy very seldom has had any.

* * *

DR. ———: How long had case been in evidence before starting the insulin?

DR. BURGESS: I think not more than three months, whereas the boy had a history of four years.

* * *

(Dr. Burgess introduces the fourth patient, a Mrs. N—.)

She was admitted to my service at the City Hospital last April, 1923. At that time she was eight months pregnant, running a temperature of 101 in the afternoon, loaded with acetone and dia-

cetic acid. She was nearly all in, as anyone could see. Nearly on the edge of coma. Dr. Adelman gave insulin and digitalis. Dr. Joyce, of the Lying-In, kept insulin going and she gradually got over her acidosis and cardiac failure. She was sent to the Rhode Island, still on high dosage of insulin, for a month, and sent back to the Lying-In, where she was delivered of a severe breech labor but perfectly healthy baby. She has changed from an old, sick woman to a blooming, young Italian woman. She is now seven months pregnant, beginning with similar trouble again. We hope this time she can be gotten by without any trouble. She shows a little acidosis.

* * *

(Dr. Burgess introduces a fifth patient, a Miss R—.)

As an instance of coma, Miss R— was fourteen hours in diabetic coma at the Rhode Island, and she is such a splendid specimen of young womanhood that I thought you would like to have a look at her. She was in the ward of the Rhode Island Hospital two months before her admission with coma, and had relapsed from her diet. One day, she remembers, she was getting sick and finding it difficult to breathe. On her admission she was immediately put on insulin every two hours, and 100 c.c.'s of orange juice. After fourteen hours she got back out of coma, and is now sugar free and in pretty good health. She made a rapid recovery. Since she has been in the out-patient department she turned out to be not so severe a diabetic as we first thought her to be. She is now getting 25 to 27 calories to kilogram of body weight. Her body weight has come up. She cannot work hard as her diet is not sustaining. It is interesting to note that now, with her increase up to forty a day of insulin, she is now showing sugar part of the twenty-four hours. That illustrates to everyone who is dealing with diabetes in the young that in spite of everything, although insulin can save their lives and keep them alive, the tolerance sometime or another takes a dive and the disease continues the same as it did before insulin was introduced.

I am interested to think of a young girl who was about four years old, now thirteen. I have seen her for nine years and her tolerance stays up. Insulin came in just in time to save her, and she is now getting by.